I.T. Services

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Basic Troubleshooting Manual for our SAISD Community

Your Guide to:

Understanding Macs

Visit us at:
http://itls.saisd.net/tli

SAISD

Your Guide to Basic Troubleshooting

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Direct any questions, comments or corrections to mguhlin@saisd.net. Your assistance will be greatly appreciated.

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What is Understanding Your Computer?

With the increased use of technology in the classroom and in the community, it is becoming increasingly more important that users be more knowledgeable about the systems they are using. Understanding Your Computer is designed to provide computer users with the knowledge and abilities to recognize computer parts and peripherals, to setup and install new computer systems, and to diagnose and repair minor computer malfunctions. The skills acquired in this course will provide users with the knowledge necessary to troubleshoot any computer system with a degree of accuracy.

What should you consider before beginning?
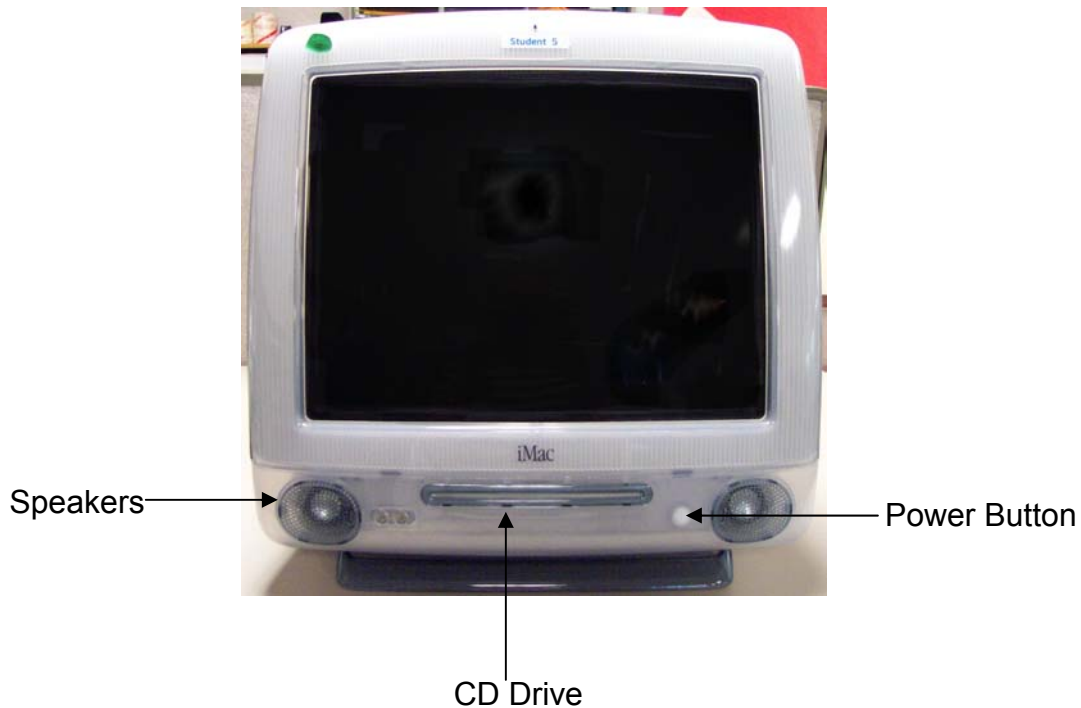
When evaluating a computer problem, it is always best to consider the circumstances surrounding the problem. By determining the last events that have taken place, many computer problems can be remedied quickly and easily. Before determining that a computer is broken you should:

1. Check for Power
2. Evaluate Connections
3. Check Drivers

By checking these basic items, computer problems can be easily determined to aid in the repair or replacement process.

Basic Components

IMAC Components

Speakers → | | ← Power Button

CD Drive

MAC Connectors

USB Connections

- USB Connections are used for keyboards, mice, SyncStations, Pen Drives, Cameras, and Printers.

- USB Connections are extremely fast and are used frequently to connect a variety of computer parts.

Network Connections

Network access may be accomplished by using:

1. Modem RJ-11 or Telephone
2. Cable Connection or Coaxial
3. RJ-45 Connection or Twisted Pair

RJ - 11

- Computers can access the internet and any network by using one of the methods listed above.

- Modem RJ-11 is the basic connection through a telephone connection.

- An RJ-11 is the same plug as is used in a regular telephone. It contains 4 wires/pins

Cable or Coaxial

Computers can also access the internet and any network through a high speed connection such as Cable or Coaxial.

Coaxial Cable is the same connection as is used to connect a television to a cable network provider.

Through the use of a cable modem, the coaxial cable will connect to a cable connection in the wall.

RJ-45

- Computers can access the internet and any network by using a RJ-45 connection.

- RJ-45 connections plug into a Network Interface Card (NIC) located inside a Computer and will plug into the wall in the same manner as a telephone connection

- Unlike the telephone RJ-11 connection that has 4 wires/pins, the RJ-45 connections has 8 wires/pins.

Peripheral Devices

Peripheral Devices are items that are connected
to a computer. Items can include:

1. Monitors
2. Keyboards
3. Mice
4. Speakers
5. Printers
6. Sync Stations
7. Modems

Setting-up an IMAC

[1] Turn IMAC to side
[2] Locate the Keyboard for the IMAC
[3] Locate the Mouse for the IMAC
[4] Plug in the Keyboard and Mouse in the Proper Port

Modem RJ-11 Connections

Keyboard Connection

RJ-45 connection

Mouse Connection
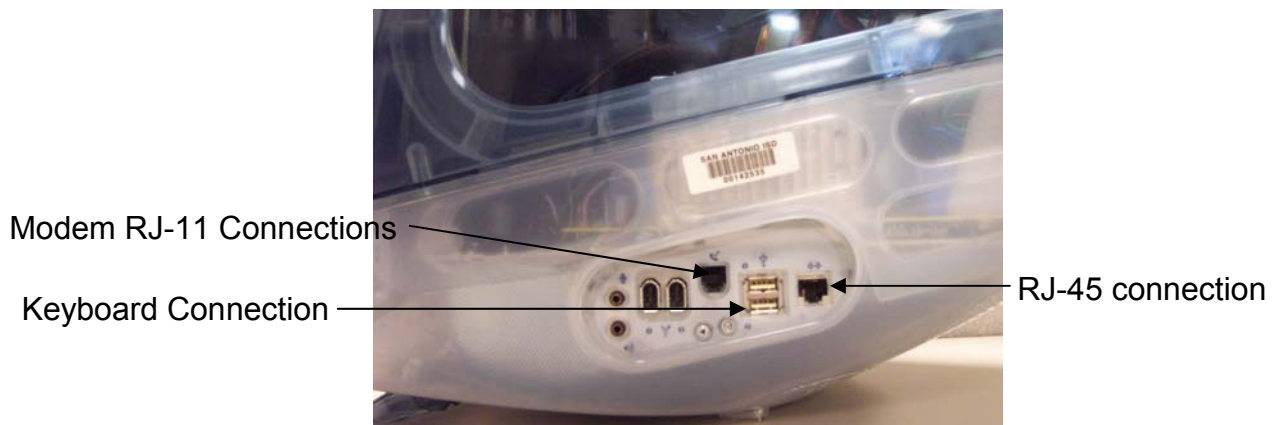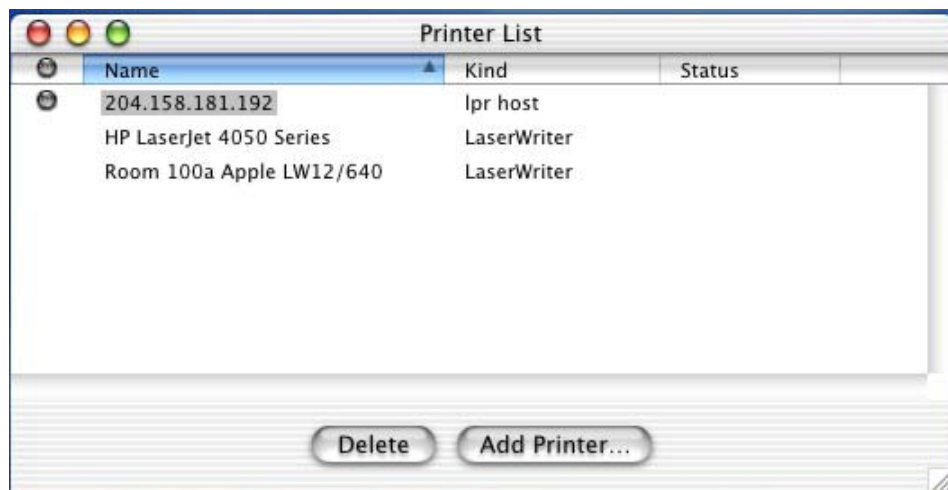
Printer Installation

- Printers may be installed with a direct connection using USB or a network connection through the use of a RJ-45 Connection.

Printer USB

Network Printer
RJ –45 Connection

Installing Printer Software

1. Open **Print Center**
2. Click on **Add Printer**

USB Printers

1. Choose USB from the printer type drop down box
2. Select the Printer type from the list\
3. Click Add
4. Follow the wizard to complete set up

Network printers

1. Choose **LPR Printers using IP** from the printer type drop down box
2. Type the printers IP address in the **LPR Printer's Address** box
3. Click Add

Power Issues

Computer Will Not Start

If the MAC will not start, there may be several possible problems. When determining the problem, check the following items.

1. Power from Power Cord
2. Memory
3. Backup Battery

Power From Power Cord

1. Check to see that the Power Cord is correctly plugged into the back of the MAC
2. Follow the cord to a power outlet or a preferred Surge Protector
3. Check to see if Power is being transferred along the connection
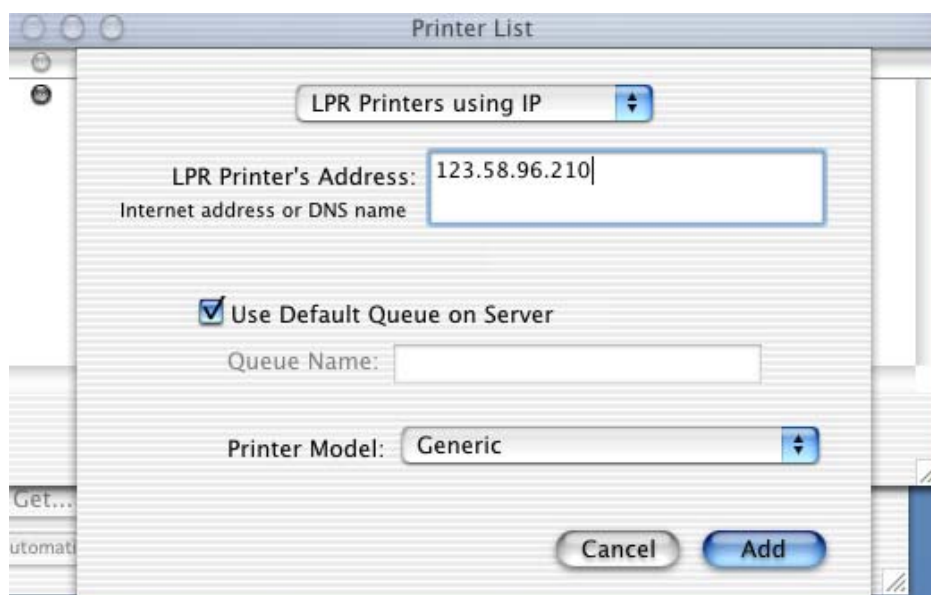4. Test different outlets and power cords

Memory

- If the computer memory is not installed correctly, the computer will not have the capability to complete the start up process.

- If the computer makes a beeping sound at start up, memory may be the cause of the start up problem.

- Check installation instructions for installing RAM. Follow the procedures to make sure the RAM was installed correctly.

Backup Battery

- If the backup battery has run out of juice, it can cause start up problems.

- Make sure that computer is turned off prior to replacing the battery.

- Purchase a Lithium battery replacement to be installed

To replace the backup battery, follow these steps:

1. Make sure that the Power has been disconnected from the computer prior to beginning.
2. Place the Monitor/Computer Face down
3. Remove the access panel (this can be done by using a screw driver on some models or a penny on other models)
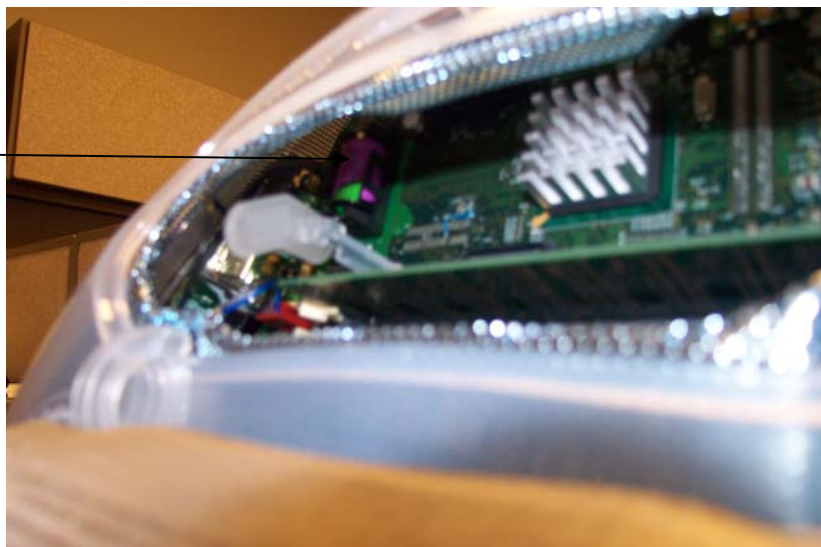
Access Panel

3. Carefully remove the old lithium battery from the computer
4. Insert the new battery

Settings such as Date and Time may need to be reset after a battery installation.

5. Find the Reset Button located near the battery
6. Press the button using a pencil or pen
7. Close access panel

Battery

Computer will not Shut Down or Restart

When the computer will not restart or shut down, there are several items that can be checked:

1. Open Applications preventing Shut down or Restart
2. PRAM

- If the computer will not restart or shut down, it is a good practice to force the computer to quit. There are several methods of completing a Force Quit.

Option 1 for Force Quit

1. Choose the Apple symbol at the top of the MAC OS screen
2. Select **Force Quit** from the options

Option 2 for Force Quit

1. Hold down the Apple Key, Control Key and Press the Power Button Simultaneously.

Option 3 for Force Quit

1. Press the Reset button located on the side of the MAC
2. Use a Pencil, Pen, or small object to press button
3. Do not use excessive force.

Reset Button

Option 4 for Force Quit (Last Resort, if all other attempts fail)

1. Unplug the Computer from the surge protector.
2. Wait at least 30 seconds
3. Plug the computer back into the power source
4. Turn the MAC back on using the Power Button

If the Force Quit does not solve the Restart or Shut Down Problems, the following items may be the cause.

Open Applications Preventing Shut Down or Restart

- Always check to make sure that all programs have been shut down correctly.

- If a program will not Quit using the File menu, press the Apple Key and the letter Q

Reset the PRAM

When resetting PRAM, some setting may need to be reset:

⇒ Date and Time
⇒ Memory
⇒ Monitors and Sound
⇒ Keyboard and Mouse
⇒ Map
⇒ Printers

1. Turn off CAP LOCKS
2. Restart the Computer
3. At restart press the Apple Key, Option key, the letters P and R
4. Hold the keys down until the start up sound is heard for the second time
5. Release keys when start up sound occurs
6. Allow the computer to restart
7. Change any settings that were erased in the reset.

Computer Freezes on Start Up

- There are several preliminary actions that you can take if the computer constantly freezes on start up.

1. Check all peripheral devices for proper connection
2. Force a Restart or Quit
3. Reinstall system hardware

- Prior to reinstalling system hardware, follow district procedures for computer repair, there may be an extension conflict or the hard disk directory may need to be repaired. Consult the Apple website or User's Guide for more information on these items.

Problems with Peripheral Devices

Keyboard or Mouse does not seem to work.

1. Check for proper connections
2. Reconnect the keyboard or mouse
3. Restart the computer
4. If the keyboard or mouse still does not work, try another keyboard or mouse.

If these preliminary steps do not correct the problem, follow district procedures for computer repair or consult the Apple web site or User's manual.

Printer Problems

Printer Will Not Print

1. Open the Print Center
2. Check to make sure that printer was installed correctly
3. Check printer connection of the back of the computer
4. Check for network connectivity if the printer was installed on the network.

Printer is printing unwanted materials

1. Open the Print Center
2. Click on the Printer from the list
3. Check for Active Jobs
4. Select any unwanted jobs and press delete, hold or resume button

- If the jobs do not appear in the Print Center, go to the print and click the Cancel Button on the printer.
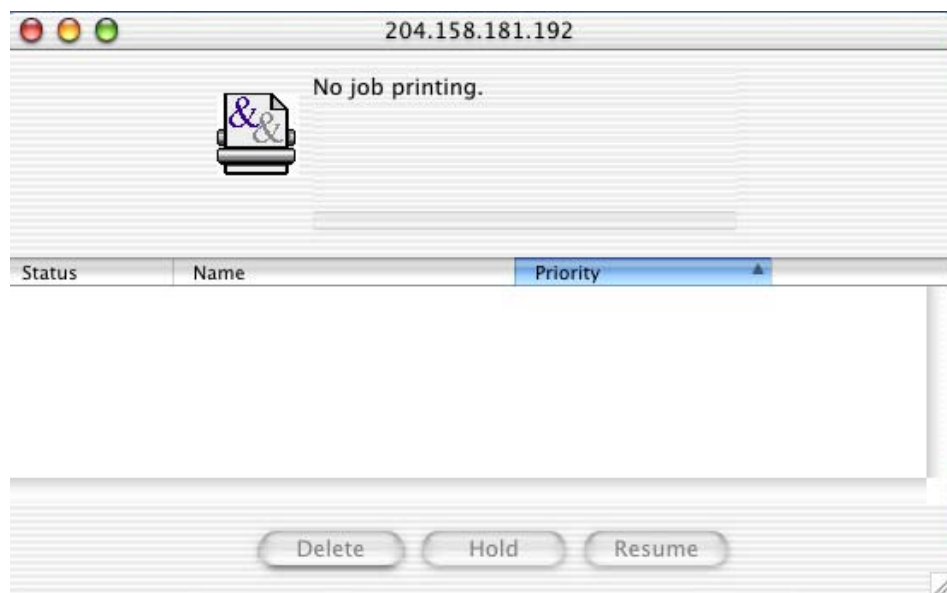
Network Connectivity

Internet or Email is Inaccessible

1. Check the network connection from the Computer to the Wall Jack
2. Make sure that the RJ-45 connection is properly inserted into the Network Interface Card
3. Go to System Preferences
4. Click on Network
5. Make sure that the TCP/IP tab is selected
6. Check that the Configuration says **Using PPP**
7. The IP Address box should be empty
8. The Router box should be empty

- If these settings are correct, restart the computer.

- Following restart, if the computer will not connect to the network, contact the Help Desk for additional steps.
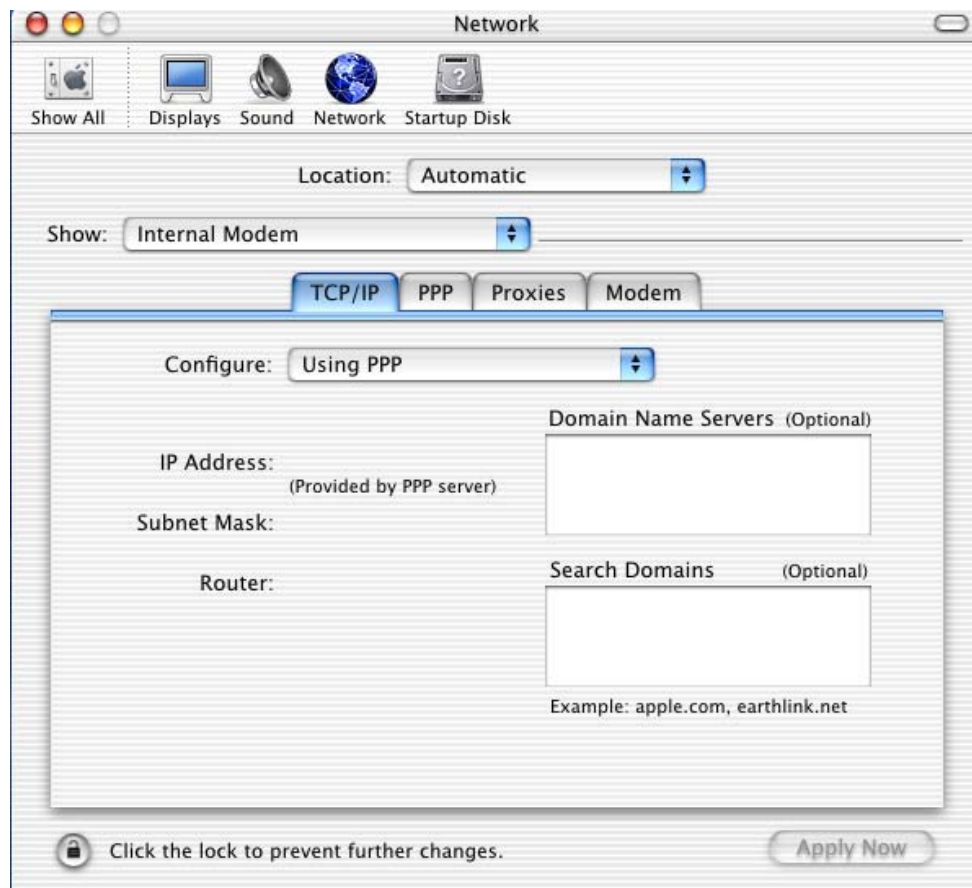
Helpful Hints - Basic Troubleshooting

MAC Help

1. Select **Help** from the Mac OS Pull Down Menu
2. Choose **MAC Help** or press the Apple Key and ?
3. Type the help item in the search field
4. Click **Ask**

Contact Apple Support

Apple provides numerous tutorials and helpful hints from the support section of the web site.

To contact or obtain support materials go to
http://www.apple.com/support

Laptop Tips

- Laptop Batteries have a lifespan of about 12-18 months.

- When storing laptops for extended periods of time, it is a good practice to remove the batteries from the laptops for storage.

- Overcharging for long periods of time without use, can cause the batteries to stop holding the charge necessary for prolonged use.

- Checking the battery life of a laptop battery could be the cure for a sluggish laptop

Tip provided by San Antonio Regional Apple Representative Rick Vollkmann

District Policies and Procedures for Reporting a Hardware Problem

According to the contractual agreement, you may request two types of service for the repair of your computer equipment - on-site and carry-in. On-site maintenance requires the vendor to report to your campus and repair the system at your location. There are instances where the system may have to be taken in to their repair facility for maintenance. For the on-site agreement the vendor is responsible for bringing the unit in and returning it and setting it up once it is repaired. Carry-in maintenance requires your campus to be responsible for taking the unit to the vendor's mainte-nance office for repair and then for picking the unit up and setting it back up at your location once the repair has been performed.

As per the bid, the vendor is required to give you an estimate before performing the repair. Some vendors charge for just providing an estimate but then apply this cost to the cost of the repair, if it is approved. If there is a charge for an estimate, you are responsible for the cost of the estimate even if the repair is not approved. Please note that all prices listed on the attachment are for labor only - the cost for parts used for the repair will be an additional cost. Any estimate you receive will include the cost for required parts.

Once your system is repaired, the vendor will invoice your campus directly for the cost of the repair. When you receive the invoice, prepare a form AB17 for payment to the vendor and forward it to Finance.
If you need assistance, please contact the Helpdesk by:
1. Phone 281-9090
2. Fax 281-0256
3. Email helpdesk@saisd.net
The Help Desk hours are Monday-Friday from 7:30 a.m. – 4:30 p.m.

Test for Knowledge—Basic Troubleshooting

1. Set up a computer workstation

2. Connect a local printer

3. Connect a network printer

4. Reset PRAM

Mini-Basic Troubleshooting Quiz

1. What are three connection types for accessing network services or the internet?
   _____
   _____
   _____
   _____

2. What is the difference between a RJ-11 connection and a RJ-45 connection?
   _____
   _____
   _____
   _____
   _____
   _____
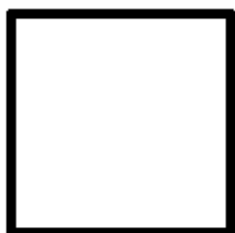
3. If the computer will not restart, start or shut down, what are the four options for a Force Quit?
   _____
   _____
   _____
   _____
   _____

4. What are peripheral devices?
   _____
   _____
   _____
   _____
   _____

5. What are some of the settings that may be affected if the PRAM has been reset?
   _____
   _____
   _____
   _____
   _____

6. What steps should you take to troubleshoot a freezing problem with the computer?
   _____
   _____
   _____
   _____

Geometric Reflection and Evaluation

Something I learned
that SQUARED with
my beliefs.
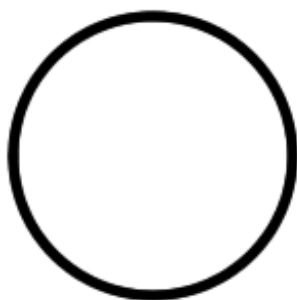
A question going
AROUND in my mind...

STOP!
How do I plan to
implement what I have
learned?

**3 Important POINTS
to Remember**

Please respond to the questions by selecting 1-5, 5 being the highest and 1 being the lowest, below:

1.Held my interest with relevant examples.	1	2	3	4	5
2.Facilitated activities effectively that reflected a clear grasp of the topic.	1	2	3	4	5
3.Responded effectively to questions.	1	2	3	4	5
4.Delivered content in an appropriate, well-paced manner.	1	2	3	4	5
5.Provided opportunities for active participation.	1	2	3	4	5
6.Provided quality handouts that enhanced my learning experience.	1	2	3	4	5
7.If this activity was TEKS-related, at what LOTI level were most of the activities?	1	2	3	4	5
8.Anything else you would like to share about the workshop today that may not have been addressed previously?					

Levels of Technology Integration (LOTI)

Level	Category	Description
0	Nonuse	A perceived lack of access to technology-based tools or a lack of time to pursue electronic technology implementation. Existing technology is predominately text-based (e.g., ditto sheets, chalkboard, overhead projector).
1	Awareness	The use of computers is generally one step removed from the classroom teacher (e.g., it occurs in integrated learning system labs (i.e. Jostens, CCC, IDEAL, Plato), special computer-based pull-out programs, computer literacy classes, and central word processing labs). Computer based applications have little or no relevance to the individual teacher's instructional program.
2	Exploration	Technology-based tools serve as a supplement (e.g., tutorials, educational games, simulations) to the existing instructional program. The electronic technology is employed either for extension activities or for enrichment exercises to the instructional program.
3	Infusion	Technology-based tools including databases, spreadsheets, graphing packages, probes, calculators, multimedia applications, desktop publishing, and telecommunications augment selected instructional events (e.g., science kit experiments using spreadsheets or graphs to analyze results, telecommunications activities involving data sharing among schools).
4a	Integration (mechanical)	Technology-based tools are mechanically integrated, providing a rich context for students' understanding of the pertinent concepts, themes, and processes. Heavy reliance is placed on prepackaged materials and sequential charts that aid the teacher in the daily operation of the instructional curriculum. Technology (e.g., multimedia, telecommunications, databases, spreadsheets, word processing) is perceived as a tool to identify and solve authentic problems relating to an overall theme
4b	Integration (routine)	Teachers can readily create integrated units with little intervention from outside resources. Technology-based tools are easily and routinely integrated, providing a rich context for students' understanding of the pertinent concepts, themes, and processes. Technology (e.g., multimedia, telecommunications, databases, spreadsheets, word processing) is perceived as a tool to identify and solve authentic problems relating to an overall theme/concept.
5	Expansion	Technology access is extended beyond the classroom. Classroom teachers actively elicit technology applications and networking from business enterprises, governmental agencies (e.g., contacting NASA to establish a link to an orbiting space shuttle through the Internet), research institutions, and universities to expand student experiences directed at problem solving, issues resolution, and student activism surrounding a major theme or concept.
6	Refinement	Technology is perceived as a process, product (e.g. invention, patent, new software designed), and tool for students to use in solving authentic problems related to an identified real-world problem or issue. In this context, technology provides a seamless medium for information queries, problem-solving, and product development. Students have read access to and a complete understanding of a vast array of technology-based tools to accomplish any particular task.

Resources, Links & Citations

Resources and Graphics

http://www.info.apple.com/

http://www.info.apple.com/usen/imac/

http://docs.info.apple.com/article.html?artnum=106796

http://docs.info.apple.com/article.html?artnum=106714

http://docs.info.apple.com/article.html?artnum=95164

http://docs.info.apple.com/article.html?artnum=2238

http://docs.info.apple.com/article.html?artnum=2238

http://www.info.apple.com/support/manuals.html

http://www.info.apple.com/support/applespec.html

http://discussions.info.apple.com/

http://www.apple.com/training/

 http://www.nullmodem.com/images/usb-cables.gif

http://www.networkbroadcast.net/images/cable-modem.gif

ListServs and Discussion Groups

http://lists.apple.com/mailman/listinfo/apple-help-authoring